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Financial Investments, Information Flows, and Caste Affiliation: Empirical Evidence from India

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Abstract

This paper empirically investigates the relevance of social interaction and caste affiliation for individual awareness of financial instruments and investment behavior in India. The results of our empirical analysis, which is based on a large scale survey on saving patterns of Indians, suggest a positive relationship between financial knowledge and social interaction. However, especially backward caste people living in regions with a large fraction of backward castes have a lower probability of being aware of various financial instruments. In contrast, we find only weak empirical evidence for a direct effect of caste affiliation and social interaction on investment behavior.

JEL-Codes: G11, G14, R2, Z1

Keywords: Financial Literacy, Social Interaction, Social Networks, Indian Castes

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1 Introduction

Emerging economies are characterized by a limited participation of private households in financial markets (Honohan, 2008). On the one hand this might be explained by the relatively large fixed transaction costs associated with financial market participation (Cole et al., 2009). Especially poor individuals with low savings may refuse to demand them because costs of financial products exceed their returns. On the other hand, limited financial knowledge among the general population may inhibit demand. Individuals may not be aware of financial products and consequently they do not invest in these products. As pointed out by Lusardi (2008, p. 30), "savings decisions are not only derived from maximizing utility under a lifetime budget constraint but also under the limitations imposed by financial literacy, lack of information, and crude sources of financial advice".

This paper empirically investigates the determinants of individual awareness of financial instruments and investment behavior in India. In doing so, this paper ties together related but largely unconnected strands of literature: the literature dealing with the role of social interaction for financial market participation (Hong et al., 2004), social network theory (Burt, 1980; Granovetter, 2005; McPherson et al., 2001), and the literature examining the influence of Indian caste system on individual behavior (Hoff and Pandey, 2006; Munshi and Rosenzweig, 2006; Deshpande, 2000a). Theoretical and empirical results suggest that individuals learn about financial instruments through social interaction via word-of-mouth communication or from observable learning (Brown et al., 2008; Hong et al., 2004; Osili and Paulson, 2008). However, social network theory suggests that social interaction is more likely to take place within social groups than between social groups because individuals tend to interact with individuals who are socially close.

We argue that the Indian caste system is especially suited for the analysis of the effects of social networks because social interaction between backwards castes' and people belonging to other castes is less likely than social interaction within castes. A low level of financial literacy of backward castes people might be self-sustaining because of strong intra-caste externalities if individuals belonging to backward castes are less aware of financial instruments than other individuals. Moreover, we argue that the effects of word-

of-mouth communication are local in scope because information tends to be exchanged between geographically close individuals. Hence, the strong presence of backward castes in a region may affect individual financial knowledge of backward caste people in that region.

In order to test our hypotheses we make use of a National Data Survey on Saving Patterns of Indians (NDSSP) conducted at the request of the Ministry of Finance of India in 2004/2005. This dataset allows us to distinguish between an individual's awareness of various financial instruments and actual investments in those instruments. It does not only contain information about shares and bonds but also about Indian-specific instruments of micro finance, i.e. group savings and chit funds. Furthermore, the dataset provides information about social interactions that are related to savings decisions, caste affiliation, household earnings and expenditures, level of education, and the usage of various sources of information.

Our data shows that individuals belonging to backward castes tend to be less aware of financial instruments than other castes. This negative effect is confirmed by the results of econometric analyses, especially if individuals belonging to backward castes live in regions with a large fraction of backward castes. Moreover, we find that social individuals who consult friends and other individuals before making savings decisions are more likely to know financial instruments. There is some empirical evidence that the positive effects of consultancy from friends is lower for backward castes. However, once individuals are aware of financial instruments, the effects of caste affiliation and consultancy on the probability of investing in these instruments are statistically insignificant or not very strong.

Our study is related to empirical studies investigating financial literacy in developed countries (Lusardi and Mitchel, 2007, 2008; Lusardi and Tufano, 2009), the very few studies dealing with the demand for financial services in emerging markets (Cole et al., 2009), and in particular to the studies analyzing the role of social interaction for financial market participation (Brown et al., 2008; Hong et al., 2004). However, the latter studies do not really distinguish between the awareness of financial instruments and actual

investment behavior. Our study contributes to the literature by separately analyzing the determinants of individual awareness of financial instruments and the determinants of actual investments in financial instruments. This allows us to disentangle the factors influencing financial knowledge from the factors influencing actual investment behavior and to analyze the relevance of word-of-mouth communication for the diffusion of financial knowledge. Moreover, this paper contributes to the literature by investigating the influence of regional knowledge diffusion on individual financial knowledge.

This paper proceeds as follows. The next section discusses relevant literature and derives hypotheses. Section 3 describes the data source and the measurement of variables. Descriptive statistics and the results of econometric analyses are presented in Section 4. Section 5 provides a discussion and Section 6 concludes.

2 Literature and Hypotheses Development

Individuals' financial knowledge and their decision to participate in financial markets may be influenced by social interaction with family members, friends, colleagues or bank consultants. This section starts with a discussion of the relevance of social interaction for stock market participation, explains the relevance of group effects for social interaction, and analyzes the relationship between social interaction and the diffusion of financial knowledge in the context of the Indian caste system. It concludes with hypotheses about the effects of caste affiliation on individual financial knowledge and actual financial investments.

2.1 Social Interaction and Stock Market Participation

The number of studies dealing with the influence of social interaction on the demand for financial products is scarce. Hong et al. (2004) argue that social interaction might influence stock market participation in two ways: first, financial knowledge may diffuse by means of word-of-mouth communication or observable learning (Banerjee, 2000; Bikhchandani et al., 1992; Ellison and Fudenberg, 1993, 1995). Individuals may commu-

nicate with other individuals and learn about stocks, e.g. their returns, riskiness or how to execute trades. Second, investors may get pleasure from talking about their stock market investments. Individuals may participate in the market because they expect to get utility from future talks with their friends and neighbors if the latter are also investing in the stock market. Although both channels provide an explanation why social interaction might influence stock market participation, there is one important difference: in the case of word-of-mouth learning, social interaction takes place *before* any investment, whereas in the case of getting utility from talking with peers, the interaction takes place *after* the decision to participate in the market is made.

To portray the effects of social interaction, Hong et al. (2004) develop a theoretical model which distinguishes between *social* and *non-social* investors. All individuals face fixed costs of stock market participation. However, while the fixed costs of *non-social* investors are not influenced by the behavior of other individuals, the fixed costs of *social* investors are lower when the participation rate among their peers is higher. This implies that, ceteris paribus, *social* investors find it more attractive to participate in the stock market than *non-socials* and that the probability of stock market participation of social investors will be high if the participation rate among their peers is high. Hence, social investors benefit from positive network externalities.

Using US data from the Health and Retirement study, Hong et al. (2004) find that individuals who know and visit their neighbors or attend church are more likely to participate in the stock market than other individuals. They conclude that social households have a higher probability of participating in the stock market than non-social investors. Moreover, their results suggest that the effect of sociability is especially strong in states where stock market participation is higher and therefore conclude that their results point to the relevance of peer-effects (Hong et al., 2004). However, their results do not allow them to discriminate between community effects resulting from word-of-mouth communication and the effects of enjoyment of conversation that people get from talking about the market together. Hence, it remains unclear whether an investment is motivated by *expected* benefits of social interaction or by *past* learning about the existence of investment

opportunities via word-of-mouth communication.

Brown et al. (2008) investigate whether the relationship reported by Hong et al. (2004) is a causal relation and whether community effects result from word-of-mouth communication. To do so, Brown et al. (2008) instrument for the average stock market participation of individuals' communities with lagged average stock market participation (ownership) of the states in which individuals' non-native neighbors were born. Using a large US panel dataset of tax returns covering the years 1987 to 1996, they find empirical evidence for causal community effects. Furthermore, they find that the link is stronger in communities where households are more likely to be asked for advice by neighbors. Hence, they conclude that their results are driven by word-of-mouth communication.

2.2 Group Identity and Social Interaction

Social network theory suggests that the extent of social interaction may be determined by the strength of the relationship between individuals. This theory distinguishes between weak and strong ties and it can be expected that social interaction and communication may be facilitated in strong ties relationships (Granovetter, 2005; Coleman, 1988). Moreover, it is likely that strong ties exist between individuals who are socially and geographically close (Burt, 1980; McPherson et al., 2001; Feld, 1984; Marx and Spray, 1972). One might expect, for instance, that individuals are more likely to communicate with other individuals if the latter belong to the same ethnic group or have the same social background. Consequently, it may not only be important whether an individual is a social or non-social person, but the characteristics of an individual's peer group might be relevant, too.

Hong et al. (2004) show theoretically that once positive externalities across members of a peer group are strong enough, a high or low stock market participation rate can be self-sustaining. If, for instance, none of a social individual's peers are participating in the stock market, the individual faces the same fixed costs as an otherwise identical non-social individual. This implies that an ethnic groups' stock market participation in the past may affect the current participation rate. According to Hong et al. (2004), relatively low

stock market participation rates of wealthy and educated non-white and Hispanic households might be explained by a low stock market participation rate equilibrium (Hong et al., 2004). Moreover, Hong et al. (2004) find that the effect of their sociability indicator is stronger for white, educated and wealthy households than for other households. Hence, their results may point to the relevance of group effects for social interaction and participation in stock markets.

One may even though wonder whether social interaction within ethnic groups is very important for the diffusion of financial knowledge in developed economies. Most people make use of modern communication technologies, like the Internet, which allow them to communicate with other people irrespective of their ethnic background. Moreover, individual financial knowledge is likely to be influenced by the use of various sources of information (e.g. television, newspaper). Furthermore, in developed economies like the US people with different ethnic backgrounds work together every day and there are many cross-group marriages. Hence, separation between ethnic groups might not be as strong as in developing economies.

2.3 Indian Caste System and Social Interaction

The Indian caste system is an excellent case for studying social interaction and group effects, since caste is given at birth and cannot be changed over lifetime. As it has persisted in Indian society for around 3,500 years it still remains prevailing in practice, although some aspects such as untouchability were abolished by the government. The so-called "Scheduled Castes" (SC's) and "Scheduled Tribes" (ST's), which are also known as backward castes, remain close in their social relations, marriage and rituals. Hence, it is likely that people belonging to backward castes communicate with each other rather than with the people belonging to other castes (Carlsson et al., 2009). Although social separation between certain groups (e.g. migrants, blacks, whites, religious groups) is existent in the US or other developed countries, the separation between *backward castes* and other castes tends to be even stronger within Indian society .

Economic theory does also point to the relevance of the caste system. Akerlof (1976)

shows theoretically that an equilibrium may exist where those who break caste custom suffer economically by being outcasted. Hence, the greatest return is allotted to those who do not break social custom and stay socially and geographically close (Akerlof, 1997).

Empirical studies indicate that social ties between people belonging to the same caste are much stronger than ties between people belonging to different castes. This might be the result of informal and social norms in Indian society. For instance, marriage in India is one of the most important economic decisions which is still heavily influenced by caste affiliation. Banerjee et al. (2009) show that in India a strong preference for within-caste marriage still exists, often managed by parents and family. The results reported by Rosenzweig and Stark (1989) also suggest that status as well as family boundaries are still very important.

Furthermore, the results of empirical studies suggest that the Indian caste system influences economic behavior in many ways. Munshi and Rosenzweig (2006) find that particularly boys from backward castes are still channeled into local language schools although the returns to English education increased remarkably. Hoff and Pandey (2006) find that high school boys who belong to backward caste perform worse when their caste is publicly revealed than under anonymous conditions. They argue that backward caste individuals might anticipate that their effort will be poorly rewarded.

Taken together, although Indian governments have initiated various policy programs to provide support to backward castes, the Indian caste system is still very important and has a strong influence on social interaction and economic decisions.

2.4 Indian Caste System and Financial Literacy

We argue that the Indian caste system influences the demand for financial products in India through its relevance for social interaction. Since backward castes are historically seen as the deprived class and still seem to suffer from certain inequalities like education, it is likely that individuals belonging to backward caste tend to have a lower level of financial literacy as compared to other individuals and are less likely to participate in financial markets. Consequently, externalities associated with social interaction among themselves

may have an important influence on current financial knowledge and investment behavior of backward caste people, above and beyond the effects of any current conditions such as individual income, education, and access to information sources. According to Hong et al. (2004), one would expect that a low stock market participation rate among individuals belonging to backward caste results in a low *participation equilibrium*.

However, in India and other emerging economies stock market participation is rare. By focusing exclusively on stock market participation one would ignore that individuals may invest in other financial instruments which might be more relevant in emerging economies. We therefore do not restrict our empirical analyses to the stock market but investigate the demand for various financial instruments. Moreover, people in emerging economies may not even be aware of various financial instruments. Studies focusing exclusively on *participation* in financial markets are not able to examine the factors determining the *financial knowledge* of individuals who do *not* participate in financial markets. However, the fact that someone does not invest in a financial instrument does not mean that she or he is not aware of that financial instrument. In the case of word-of-mouth learning the social interaction takes place *before* any investment and therefore investigating the financial knowledge of non-investors might shed some light on this type of knowledge diffusion. Therefore, we distinguish between individual awareness of financial instruments and actual investment behavior.

Moreover, it is unclear whether social interactions are really restricted to members of their own ethnic group. One might argue, for instance, that modern communication technologies such as the Internet tend to facilitate cross-group communication. Therefore, we control for such knowledge sources in our empirical analysis. Furthermore, we argue that social interaction takes place between geographically proximate individuals and therefore people belonging to backward castes tend to communicate with people who also belong to these castes and who are living in the same region. Hence, the effects of intra-caste social interaction on individual financial knowledge and individual investment behavior may be stronger if these people are living in regions where the share of backward castes in total population is high.

This discussion leads to the following hypotheses. First, controlling for income, education, information sources, and focusing on non-investors, we expect that backward caste people are less likely to be aware of various financial instruments. Second, we expect that this negative effect is stronger if an individual belonging to backward castes lives in a region with a strong presence of backward castes. Third, we expect that people who consult other individuals or institutions before making investment decisions are more likely to be aware of financial instruments. Fourth, the positive effect of consulting friends tends to be lower for backward caste people, in particular if they live in regions with many other backward castes. Fifth, actual investment behavior may be directly influenced by the Indian castes system or it may be indirectly affected by the Indian caste system through its impact on individual financial knowledge via word-mouth communication.

3 Method

3.1 Data – The National Data Survey on Saving Patterns of Indians (NDSSP)

Our empirical analysis is based on the National Data Survey on Saving Patterns of Indians (NDSSP), which was conducted by AC Nielsen/Org-Marg on behalf of the Indian Ministry of Finance in 2004/2005 in India. The NDSSP comprises information about household savings, investment in financial instruments as well as the financial knowledge of the respondents. It further provides information about respondents' age, caste affiliation, education, information sources used and place of residence (urban or rural area, state).

The NDSSP dataset covers 40,862 families and about 211,000 individuals. Although each household was asked to provide information on all its members (e.g. demographics, education), only one earning adult member from each family was chosen to answer a detailed questionnaire. We restrict our sample to respondents who are head of the household and who can therefore be expected to be responsible for savings decisions. Moreover, we exclude all household heads without positive savings from the empirical analysis because it is very likely that only household heads with positive savings are really interested in

financial matters. As expected, almost all of the household heads without positive savings do not answer questions concerning saving decisions which implies a high number of missing values. Hence, in our sample all household heads have a positive amount left as a balance, which means that the total annual income of these respondents exceed their personal expenses and the expenses of persons financially dependent on them. Our final sample consists of 28.406 observations.[1]

3.2 Measurement of Variables

3.2.1 Dependent Variables

Due to the liberalization of Indian financial markets at the beginning of the 1990s, investment opportunities of people in India have increased remarkably. Like in other countries people can now acquire and publicly trade company issued tangible assets (shares) and can invest in debt securities that companies or the government issue (bonds). Moreover, they can invest in mutual funds which are saving pools of money of several investors invested into different kinds of securities. However, the most important Indian financial instruments are *chit funds* and *group savings*. Chit funds and group savings resemble common Indian bank operations and are offered by banks as well as by Micro Finance Institutions (MFI).

A *chit fund* is an indigenous rotating saving and credit organization. While chit funds are prevalent among households and small businesses all over India, they are also organized by Chit Fund Firms, especially in South India, and are regulated by the Chit Fund Act, whereas *group savings* are mostly used by the so called Self Help Groups (SHGs) and promoted by government agencies, NGO's and banks. Group savings are targeted to women as well as to poor individuals and structurally poor communities, e.g. Scheduled Castes (SC's) and Scheduled Tribes (ST's). Group savings represent access to financial services at low cost and are aimed to motivate individuals in doing commercial village affairs. Group saving members periodically save in the group and the savings are

[1]The head of household in India is the one who maintains the family, in our final sample 25,400 men and 3,006 women between 17 and 92 years are head of household.

lent out to members who require loans at a fixed interest rate (Nair, 2005).

In our empirical analysis we investigate the factors that determine the individual awareness of these financial instruments and the actual investments in these financial instruments.

Awareness: The individual awareness of specific financial instruments is measured by interviewees' answers to the following question: "Are you aware of such an instrument of investment?" The respondent could answer either yes or no. Thus, we compute five dummy variables: *"awareness: shares, bonds, mutual funds, chit funds and group savings"*. The respective dummy variable takes on the value one if the respondent declares that he or she is aware of the respective financial instrument, and is zero otherwise. This survey question is a filter for the subsequent questions regarding the individual investment behavior. If an interviewee states that he or she is not aware of a financial instrument no further questions are asked concerning investments in the respective financial instrument.

Investment: Only those interviewees who state that they are aware of a financial instrument are asked whether they ever invested in that financial instrument. Therefore we compute five dummy variables: *"invested: shares, bonds, mutual funds, chit funds and group savings"* If a respondent declares that she or he has ever invested in a financial instrument, the respective dummy variable takes on the value one and zero otherwise. Hence, a value of zero means that the respondent never invested in such an instrument.

3.2.2 Explanatory Variables

Backward castes: NDSSP dataset allows us to identify individuals who belong to the "Scheduled Castes (SC's)" and "Scheduled Tribes (ST's)", who were previously called the depressed by the British. Especially in the past decades the economic situation of many individuals belonging to the backward caste has improved but SC's and ST's are still recognized as the so called "economic backward classes" in India. The dummy variable "backward caste" takes on the value one if an interviewee reports that she or he belongs either to "Scheduled Castes" or to "Scheduled Tribes" and is zero otherwise. In our empirical analyses the differences between *"backward castes"* and other castes may

be understated since the reference group does not only comprise higher castes, such as Brahmins, but also "other backward castes (Shudras)" (Deshpande, 2000b).

Social interaction: In order to measure social interaction that focuses explicitly on financial knowledge diffusion, the following survey question is used: "Did you consult anybody outside your household before making savings decisions?" The interviewees can choose between several answers and the questionnaire allows for multiple responses.[2] We focus on the interviewees' first answers because those tend to be the ones of highest relevance.[3] The dummy variable *"family"* takes on the value one if respondents declare that they do not ask anybody outside their household except other relatives, and is zero otherwise. The dummy variable *"friends"* takes on the value one if an interviewee's first answer is that she or he consults friends/peer group and zero otherwise. Professional consultancy as a source of external information is measured by a third dummy variable *"professionals"* that takes on the value one if an interviewee's first answer is that she or he asks professional consultants such as a bank advisor, investment advisors, NGO's or other agents, otherwise the variable is zero. Nevertheless, a respondent might also consult other individuals. Therefore our dummy *"others"* takes on the value one if an interviewee's first answer is that she or he consults other individuals or institutions such as religious institutions, camps organized by private companies or the government, a school teacher or a colleague at work, and is zero otherwise.

Savings: The NDSSP dataset comprises information about individuals' total earnings from work during the last twelve months from primary and secondary occupation as well as other sources of incomes, e.g. rents or remittances. Moreover, respondents report their annual expenditures for food and grocery, real estate costs, education expenses, medical expenses or repayments of loans and others. Our indicator for individual savings is the difference between annual earnings and expenditures. We use the variable *savings* as a control variable instead of using simply the variable *income* because only those individuals who are able to save money may be interested in financial matters, seek for investment

[2]Of course, multiple responses are not possible if an interviewee's first answer is 'NO'.

[3]This type of variable is used in many studies to measure the extent to which individuals interact with their social surrounding (Granovetter, 1983; Burt, 1980).

opportunities, and may participate in financial markets.

Information Sources: While we analyze knowledge diffusion via word-of-mouth communication it is important to control for further channels through which financial knowledge may diffuse, e.g., TV, radio, newspaper or the Internet. With respect to the use of diverse information channels, the respondents are asked whether they listen radio, watch TV, read newspapers and use the Internet and at which frequency they make use of these information channels. They are asked whether they used these information sources during the last month *"not at all"*, *"irregularly"* which means that they used them once a week or less, or *"regularly"* which means every day. Dummy variables are generated for the daily use of radio and TV as well as for their occasional use which means that the respondent is using these communication channels at least once a week or less. The reference category is *"not at all"*. In a similar way we generate dummy variables for the use of Internet and newspapers as sources of information.

Education: Our dataset also comprises detailed information about the individual level of education. The respondents declare their education levels by choosing between twelve possible answers from *"illiterate"* to *"post graduate and above"*. We generate dummy variables for eleven levels of education where "illiterate" is the reference category.

Furthermore, the dataset allows us to identify individuals who are able to speak, read or write English. Knowledge of English improves individual ability to gather information about financial matters since this enables individuals, for instance, to read international newspapers or to use the Internet more effectively. We generate the dummy variable *"English"* to control for this ability. Moreover, we take into account interviewees' general interest in economic topics by generating a dummy variable *"knowledge of inflation"* which takes on the value one if a respondent reports that she or he knows the current rate of inflation, and is zero otherwise.

Risk attitude: Individual risk attitude influences investment decisions and may also influence information seeking activities and in turn the individual awareness of financial instruments. Risk attitude is measured using a lottery-type question. The interviewee has to make a hypothetical investment of 1000 rupees and can choose between three

alternative investments. In the first choice Rs. 1000 may grow up to 2000 Rs. after one year or the investor may only get Rs. 500 back. In the second choice money may grow up to Rs. 1200 or the investor may lose some of the money and get Rs. 800 back. In the third choice money will grow to Rs. 1050 without any loss. The dummy variable *risk attitude* takes on the value one if an interviewee opts for the third choice, and is zero otherwise. Hence, this indicator may reflect an individual's *uncertainty avoidance* since only the third choice guarantees a positive return whereas the returns are uncertain in the first and the second choice.

Regional Characteristics: Regional measures at the state-level are obtained from *official statistics*. Since we argue that a strong presence of backward castes in a region may influence the diffusion of financial information in a region, we measure the presence of backwards castes by the *fraction of backward castes* in total population at the state-level, where 25 Indian states are taken into account. The mean value of the fraction of backward castes is 28 percent and varies between 10 and 90 percent. However, the variable *fraction of backward castes* is likely to be correlated with other regional characteristics. In order to control for other influences we include additional variables in our empirical analyses. Obvious candidates are the illiteracy rate and income at the state-level. The *Gross Domestic Product* per capita at the state-level *"GDP"* as well as the *"Illiteracy rate at state-level"* are also obtained from official statistics of the Reserve Bank of India in the year 2004 - 2005.[4]

4 Results

4.1 Descriptive Statistics

Figure 1 reports the fraction of individuals who are aware of *at least one* of the following financial investments: shares, bonds, mutual funds, chit funds and group savings.

[4]In order to check whether our NDSSP data is representative at the state-level, we compare the fraction of backward castes computed from our sample with official statistics. Further, we checked whether the illiteracy rate computed from NDSSP dataset is similar to the rate obtained from official statistics. Since official statistics and sample values do not differ much, the NDSSP dataset seems to be representative at the Indian state-level. Nevertheless, we make use of the official data obtained from the Reserve Bank of India in our empirical analyses, see: http://dbie.rbi.org.in/InfoViewApp/listing/main.do.

Moreover, it shows the fraction of respondents who have invested in *at least one* of these financial instruments during the past twelve months is very low. 48 percent of the respondents belonging to backward castes state that they are aware of at least one of these financial instruments and 59 percent of the individuals belonging to other castes report that they are aware of at least one of the financial instruments. This might point to a gap between these groups with respect to financial knowledge. However, if one focuses on individuals who are aware of financial instruments, both groups do not differ with respect to participation in financial markets: 10 percent of the people belonging to backward castes being aware of financial instruments report that they also invested in financial products and 13 percent of people belonging to other castes report that they invested. As can be seen from Figure 1 in both groups the fraction of people investing in financial products is much lower than the fraction of people being aware of these products. Hence, differences in investment behavior may result from differences between both groups with respect to the awareness of financial instruments.

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insert Figure 1 about here

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In order to analyze the differences between backward castes and other castes in more detail, Table 1 reports the awareness of financial instruments and financial market participation for each of the five financial instruments separately, i.e. the fractions of individuals who are aware of the respective financial product and who invest in that financial product. One might expect, however, that individual awareness as well as investment behavior are related to household income and household savings. Heads of households with positive savings and high incomes may be more interested in financial matters and may be also more likely to participate in financial markets. Hence, differences between backward castes and other castes with respect to financial knowledge and investment behavior may be an artefact of income inequalities if income and savings are not taken into account. Therefore, Table 1 focuses on households with positive savings (Sample I) and also presents statistics for households which additionally belong to the quartile of

households with the highest incomes (Sample II).

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insert Table 1 about here

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As can be seen from the table, there are significant differences between backward castes and other castes with respect to awareness of financial instruments. For instance, in the group of individuals with positive savings (Sample I), the fraction of individuals being aware of shares is 31.8 percent for other castes and 20 percent for backward castes. As one might expect, this fraction increases if only households with high incomes are considered (Sample II). However, while the fraction increases to 53.5 percent for other castes, it merely increases to 34.9 percent for backward castes which results in a difference of 18.5 percentage points. Contrary to our prior expectations, differences between castes do not vanish if one focuses on households with high incomes but become even more evident. A similar result can be observed for the other financial instruments. For all financial instruments the fraction of individuals being aware of the respective financial instrument is significantly lower for backward castes as compared to other castes.

However, actual investment in shares does not differ remarkably between backward castes and other castes if only those individuals are considered who are aware of the respective financial instrument. For instance, the fraction of individuals investing in shares is 1.8 percent for other castes and 1.4 percent for backward castes (Sample I). For households with high incomes this fraction increases to 3.2 percent for other castes and 2.7 percent for backward castes. Similar results can be obtained for bonds. In contrast, there are some differences between the two groups with respect to the specific savings schemes practiced in India. While backward castes tend to invest in group savings, other castes seem to prefer chit funds. At least with respect to group savings the differences vanish if only high income households are considered. As one might expect, the fraction of individuals investing in group savings and chit funds decreases if only high income households are considered. This shows that these financial instruments are attractive especially for the poor.

Taken together, descriptive statistics indicate that backward castes are less aware of financial instruments than other castes. This result persists even if only high income households with positive savings are considered. In contrast, differences between both groups are less distinct with respect to their actual investment behavior.

Summary statistics for all explanatory variables are reported in Table 2. As can be seen from the table, both, backward castes as well as other castes predominantly consult their family members before taking savings decisions, i.e. roughly 73 percent of the individuals in our sample consult their family and relatives. Friends and peers are consulted by 17.7 percent of the group of other castes and by 16.7 percent of the group of individuals belonging to backwards castes. A minority of individuals in both groups consult professionals or uses other sources of consultancy. There are no significant differences between the two groups.

Personal characteristics do also not differ very much between the two groups. Savings are slightly higher for other castes as compared to backward castes but risk attitude seems to be very similar. The educational background, however, is very different. Other castes are better educated than backward castes and the fraction of individuals who are able to speak, read or write English is significantly lower for backward castes as compared to other castes. Furthermore, individuals belonging to other castes tend to use information sources like newspaper, television, and Internet to a larger extent than backward castes. This may be explained by the lower level of education and the fact that 51.4 percent of individuals belonging to backward castes live in rural areas whereas only 44.5 percent of individuals belonging to other castes live in such areas.

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insert Table 2 about here

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Since we make use of a number of explanatory variables, multicollinearity might be an issue. Although not reported here, we calculate pairwaise correlation coefficients for all explanatory variables. The strongest correlation with a correlation coefficient of -0.714 arises between the measures of the GDP per capita at the state-level and the illiteracy

rate at the state-level. For this reason these two variables are not jointly included as regressors. Instead, illiteracy rate is used as an explanatory variable for the awareness of financial instruments and GDP per capita is included as an explanatory variable for actual investment decisions. Further variables with a modest correlation are education variables, the knowledge of the English language as well as variables that indicate the use of mass media as information sources. The correlation coefficients vary for our education dummies higher secondary degree to post graduate, and the variable English knowledge between 0.207 and 0.273. Correlation coefficients for the daily use of newspaper and Internet and the daily use of radio and TV vary between 0.151 and 0.379. Moreover, we check for multicollinearity among the explanatory variables by calculating variation inflation factors (VIF). These are reported in Table 3. The variation inflation factors range from 1.03 to 3.05, which indicates that multicollinearity is not a severe problem.

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insert Table 3 about here

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4.2 Determinants of Individual Awareness of Financial Instruments and Investment Decision

In order to investigate the determinants of individual financial knowledge and actual investment decisions, we conduct separate estimations for each financial instrument, i.e. shares, bonds, mutual funds, chit funds, and group savings. We run Probit regressions since the dependent variables – awareness of financial instruments and actual investment behavior – are binary variables and report the marginal effects for each of the explanatory variables which are calculated at the means of the other explanatory variables.

A potential concern with respect to the empirical analyses of the factors explaining individual awareness of financial instruments is that our analyses are based on cross sectional data and therefore do not allow us to investigate the development of individuals' financial knowledge over time. Potential endogeneity problems may arise, for instance, because experience with investments in certain financial instruments may affect the de-

cision to consult others. To avoid potential endogeneity problems we focus on the group of non-investors in our analysis of the factors influencing the probability of being aware of shares. This means that we only consider individuals who report that they never invested in the respective financial instrument and therefore exclude all individuals from the empirical analyses who ever had invested in that financial instrument. In a next step, we investigate the factors that influence the probability of investing in financial instruments. Here, we only consider those individuals who are aware of the respective financial instruments and exclude all others. For instance, in our empirical analyses of the factors influencing the probability of being aware of shares, we exclude all individuals who ever invested in shares and in our analyses of the factors influencing the probability of actually investing in shares, we exclude all individual who are not aware of shares. This allows us to disentangle the factors influencing awareness of financial instruments from the factors influencing actual investment behavior.

We first estimate a baseline model which focuses on the main effects of the explanatory variables. In an extended model, we also take into account interactions between three dummy variables, namely the backward caste dummy, a second dummy that takes on the value one if the respondent lives in an Indian state with a high share of backward castes in total population (above average), and a third dummy reflecting the consultancy of friends. This allows us to analyze whether there are differences between individuals belonging to backward castes and individuals belonging to other castes with respect to the relevance of friends as sources of financial knowledge and the effect of a strong presence of backward castes in a region. We interact these variables pairwise and also include triple interactions. We compute the marginal effects of the interaction terms by using the delta method proposed by Ai and Norton (2003) and Corneliessen and Sonderhof (2010) because standard methods for the computation of marginal effects cannot be applied in the case of interaction terms.

4.2.1 Awareness of Financial Instruments

Table 4 presents the results for our baseline model. It reports the marginal effects of the explanatory variables on the individual probability of being aware of shares, bonds, mutual funds, chit funds, and group savings. Although not reported, the results of χ^2-tests show that the estimated marginal effects of the consultancy variables are jointly significant for all five financial instruments. This suggests that social individuals who consult other individuals before taking savings decisions are more likely to be aware of financial products than individuals who only consult family members. Especially consultancy of friends and professionals is positively related to the awareness of financial instruments. For instance, consulting friends is associated with a 4.77 percentage points higher probability of being aware of shares and consulting professionals is associated with a 5.69 percentage points higher probability. In contrast, consulting other individuals and institutions does not significantly affect the probability of being aware of share, bonds and mutual funds whereas this type of consulting positively influences the probability of knowing chit funds and group savings.

Regional factors are also relevant for individual financial knowledge. The effects of the regional variables are jointly significant as well as individually significant. Individuals living in rural areas, in regions with a high share of backwards castes and in regions with a high share of illiterate people are less likely to be aware of financial products. The only exception are group savings where people in rural areas have a higher probability of knowing this financial instrument. Hence, our results point to the relevance of regional knowledge diffusion since the strong presence of other individuals with a low level of financial knowledge tends to be associated with a lower probability of being aware of financial instruments.

Among the personal characteristics backward caste affiliation is the only variable which is statistically significant for all financial instruments. It is a striking result that the estimated marginal effect of the backward caste dummy variable is negative and statistically significant even after controlling for a number of other variables. Our results suggest, for instance, that people belonging to backward castes have a 2.99 percentage

points lower probability of being aware of shares than people belonging to other castes. The marginal effect of savings is always positive and statistically significant for four of the five financial instruments. According to our results females tend to be more aware of group savings while less aware of shares. Moreover, awareness of shares, bonds, and mutual funds seems to increase with age.

Education is also highly relevant for the probability of being aware of financial instruments. According to the results of χ^2-tests the marginal effects of the ten dummy variables reflecting the levels of education are jointly significant. This is especially true for shares, bonds, and mutual funds where a higher level of education is associated with a strong increase in the probability of knowing the respective financial instrument. Education seems to be less relevant for group savings. Furthermore, the awareness of all financial instruments is higher if individuals are able to write, read or speak English and if they state that they know the current rate of inflation. Finally the use of public information sources such as Internet, TV, and radio increases the probability of being aware of financial instruments. In particular, those individuals who use these information sources every day are more likely to know financial instruments.

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insert Table 4 about here

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The results for the extended model with interaction terms are presented in Table 5. Although all explanatory variables are included in the regressions, only the marginal effects of the variables of interest are reported. Our theoretical considerations let us expect that the effect of social interaction with friends and the presence of backward castes in a region may be moderated by the backward caste variable. Marginal effects of interaction terms provide information about the moderating effects of the variables. As can be seen from the table the sign and the statistical significance of the main effects are the same as in Table 4. The only interaction term which does not have a statistically significant marginal effect in all of the five regressions is the interaction between the backward castes dummy variable and the dummy variable reflecting consultancy of friends. In contrast

the interaction between backwards castes dummy and the dummy reflecting a strong presence of backward castes per state is negative in all regressions but only significant in four regressions. This implies that individuals belonging to backward castes and living in states with a strong presence of backward castes are less likely to be aware of shares, bonds, mutual funds, and chit funds. For instance, the probability of being aware of shares, is about 9.5 percentage points lower for backward caste people who live in regions with many other backward caste people. This may point to the relevance of the regional diffusion of financial knowledge. Moreover, individuals who live in states with a strong presence of backward caste people and who consult friends tend to be more likely to know chit funds and group savings but less likely to know bonds. The marginal effect of the triple interaction term is negative in four of five regressions but this negative effect is only statistically significant at a five or ten percent level in three of four regressions. A negative marginal effect implies that especially those individuals who belong to backward castes, consult friends, and live in states with a large fraction of backward castes are less likely to be aware of the respective financial product. This result is in line with our theoretical considerations.

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insert Table 5 about here

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4.2.2 Investment in Financial Instruments

Next we analyze the determinants of actual investment behavior. The analysis is restricted to individuals who are aware of the respective financial instrument, i.e. shares, bonds, mutual funds, chit funds, and group savings. Table 6 reports the marginal effects of the explanatory variables on the probability of having invested in the respective financial product. Our results suggest that the probability of investment in shares and bonds is not strongly related to external consultancy since the results of χ^2-tests show that the marginal effects of the consultancy variables are jointly insignificant. In contrast, the marginal effects of these variables are jointly significant in the case of chit funds

and group savings. Hence, social interaction seems to be more relevant for investments in financial instruments which are specific for India and which are important for poor people. This is also true for the variables capturing regional effects which do also have a significant effect on the probability of investing in these financial instruments but do not seem to be very relevant for the other financial instruments. Individuals living in rural areas and in Indian states with a lower GDP per capita are more likely to invest in group savings and individuals living in states with lower GDP per capita and a lower fraction of backward castes are more likely to invest in chit funds.

The marginal effect of the backward castes dummy variable is only significant for investment in group savings and chit funds, where the effect is positive for the former and negative for the latter. These results suggest that group savings are used more frequently by individuals belonging to backward castes whereas chit funds are used more frequently by other castes. Higher savings increase the probability of investing in shares, bonds, and mutual funds, whereas it is negatively related to group savings. Moreover, women are more likely to invest in group savings. These results can be expected because group savings are a financial instrument which is designed for poor individuals and in particular for women. Both, chit funds as well as group savings are negatively related to the level of education. The better the education the lower the probability of investing in these financial instruments. In contrast, investments in shares, bonds, and mutual funds are not related to education at all or to a lesser extent. The use of information sources, such as TV, radio, and newspaper seems to be relevant for investments in chit funds and group savings but does not seem to be very relevant for investment in other financial instruments.

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insert Table 6 about here

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Next, we present the estimation results for the extended model with interaction terms. As can be seen from Table 7, these regressions can only be performed for shares, chit funds, and group savings. Due to the small number of positive outcomes of the dependent

variables the zero outcome is predicted perfectly in the other regressions. The results suggest that the main effects as well as the interaction effect are not statistically significant in most cases. Hence, the inclusion of interaction term does not seem to add much to the understanding of the relationship between actual investment behavior and the variables of interest.

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insert Table 7 about here

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4.2.3 Robustness Checks

In order to check the robustness of our results we conduct additional regressions. Firstly, the error term may contain an unobserved state-level effect and consequently the standard errors of the effects of aggregate explanatory variables on individual-specific response variables may be biased (Wooldridge, 2003). Since the fraction of backward castes in total population at the state-level is included as an explanatory variable in our empirical analyses (and also the illiteracy rate at the state-level), we check the robustness of our results by adjusting standard errors for intra-cluster correlation within Indian states. While estimation results are hardly affected by this robustness check, we do not present adjusted standard errors because of the relatively small number of clusters (25 Indian states).[5] Secondly, we check the robustness of interaction effects by estimating linear probability models. The marginal effects of interaction terms obtained from OLS estimates are very similar to the interaction effects obtained from probit estimates. Thirdly, we run probit regressions separately for individuals belonging to backward castes and individuals belonging to other castes. The estimation results confirm our findings and do also point to significant differences between these groups. Finally, we restrict our empirical analyses to the sample of the top 25 percent of income earners. Although the sample size is reduced to 6,429 observations, the results hardly change: the marginal effect of backward caste on the awareness of shares, chit funds and group savings is still negative and statistically

[5] As shown by Bertrand et al. (2004) clustering performs very well in settings with at least 50 clusters.

significant. Further, the marginal effect of the fraction of backward castes in total population on the awareness of financial instruments is still negative and statistically significant for all five financial instruments.

5 Discussion

While the role of social interaction for stock market participation in developed economies has been analyzed in prior research, our knowledge of the relevance of social interaction for the demand for financial instruments in emerging economies is still limited. We investigate empirically the factors influencing individuals' awareness of existing financial instruments and investment behavior of households in India using a large scale survey of Indian households.

In contrast to empirical studies analyzing actual investment behavior of households, we distinguish between individual awareness of financial instruments and investment behavior. This allows us to examine the relevance of word-of-mouth communication for the diffusion of financial knowledge and thus financial literacy. If individuals learn about the existence of a financial instrument via word-of-mouth learning, social interaction takes place *before* the investment. It could be argued, however, that individuals who enjoy ex-post social interactions regarding their investment are more likely to consult others in order to learn about the investment tool. Nevertheless, this means that social interaction takes place before financial market participation. As we focus on social interaction before the real investment, we consider the group of *non-investors* when analyzing the factors influencing individual awareness of financial instruments and focus on the group of individuals who are aware of financial instruments when analyzing the factors influencing actual investment behavior.

Our data show that the majority of household heads solely consult family members before making savings decisions while a minority also consults friends, professional consultants, or other individuals and institutions. However, our estimation results suggest that social individuals who do not only consult their family members are indeed more

likely to be aware of financial instruments. Once individuals know about financial instruments, their decision to invest does not seem to be strongly affected by social interaction. Only for the Indian-specific financial instruments (chit funds and group savings) we find some empirical evidence for a positive effect of social interaction. Hence, social interaction may not affect investments directly but indirectly through the positive effects of word-of-mouth communication on individual awareness of financial instruments. This result emphasizes that it is important to distinguish between the determinants of financial knowledge and the determinants of actual investment behavior.

Moreover, we argue that the diffusion of financial knowledge via social interaction is more likely between individuals with strong social ties than between individuals with weak social ties. In particular the role of caste affiliation is empirically examined because the Indian caste system strongly affects social interactions among Indians. Descriptive statistics point to remarkable differences between the backward castes and other castes with respect to the awareness of the financial instruments. These differences do not vanish even if the comparison is restricted to high income households with positive saving rates. The results of our econometric analyses confirm that caste affiliation is an important determinant of the probability of being aware of financial instruments. Even after controlling for a number of factors that may have an influence on individual financial knowledge, individuals belonging to backward castes still have a lower probability of being aware of financial instruments. This is especially true if these individuals live in Indian states where the share of backward caste people in total population is high. If these individuals mainly interact with family members or friends who also belong to backward castes, this intra-caste interaction is less likely to improve their financial knowledge. Hence, the low level of financial knowledge might be self-sustaining because of strong intra-caste externalities.

All in all, our results indicate that backward caste people seem to be disadvantaged in making the best use of existing financial opportunities due to the lack of financial literacy. Backward caste people often even do not know financial instruments that are specifically targeted to them. The financial instrument of groups savings, for instance, is targeted

to backward castes. Nevertheless, backward caste people have a lower probability of being aware of it as compared to other individuals. However, conditional on being aware of group savings, individuals belonging to backward castes have a higher probability of investing in this financial instrument. This implies that the lack of financial knowledge is an important obstacle for participation in financial markets.

Hence, government programs that aim at improving the financial literacy of backward castes tend to be an important mean to improve savings decision and in turn the standard of living of backward castes. According to our results, financial literacy education of backward castes may not only have a positive direct effect on the financial literacy of individuals participating in government programs but may also generate positive externalities because of word-of-mouth learning.

A potential concern with respect to the interpretation of our empirical results are potential endogeneity issues. An appropriate method to deal with endogeneity issues is the instrumental variable approach. It is very difficult, however, to identify valid instrumental variables that affect the dependent variables only through their influence on explanatory variables (Wooldridge, 2002). Unfortunately, our dataset does not contain exogenous variables that could serve as valid and sufficiently strong instruments for our variables of interest. We therefore attempt to minimize biases due to potential endogeneity issues. There are two major reasons why our independent variables may be correlated with error terms. First, reverse causality may be a problem because investment experience may affect the decision to consult others. Since we make use of a cross-sectional dataset, we are not able to investigate the development of individual awareness of certain financial instruments over time. To avoid biases resulting from reverse causality, we therefore focus on the group of non-investors when analyzing the factors influencing the individual awareness of financial instruments, i.e. we exclude all individuals who report that they ever invested in the respective financial instrument. A second concern are omitted variables. Individual awareness of financial instruments and the investment decision may not only be influenced by social interaction and caste affiliation but also by other character-

istics.[6] In order to avoid omitted variable bias, we use a substantial number of control variables that may correlate with our variables of interest and which may also influence the dependent variables. We control for personal characteristics, regional characteristics, education, and the use of various information sources. The estimated effect of backward caste is still statistically significant. This estimated effect actually tends to underestimate the relevance caste affiliation because the latter is likely to influence many of the included covariates (e.g. education). This means that any effect of caste affiliation that is mediated by control variables will be attributed to control variables and not to caste affiliation. It is fair to say, however, that we cannot completely rule out biases due to potential endogeneity although we have taken attempts to address potential endogeneity issues.

6 Conclusion

Why do some individuals in India participate in the financial market while others do not? Our results suggest that a majority of Indian households are simply not aware of various financial instruments and that among those who are aware of financial instruments only a minority invests in these instruments. Especially individuals belonging to backward castes are less informed about financial instruments and are therefore also less likely to participate in financial markets. This result holds even if the analysis is restricted to high income households with positive saving rates. Once people are aware of financial instruments, however, social interaction and caste affiliation do not seem to have a strong influence on actual investment behavior. Hence, financial literacy education of backward castes may improve their savings decisions by lifting the limitations imposed by financial literacy.

[6] Of course, reverse causality is not an issue for the caste variable since caste affiliation is given at birth and cannot be changed over lifetime. It may be correlated, however, with other unobserved variables.

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Figure 1:

Share of Awareness and Investments of Financial Instruments

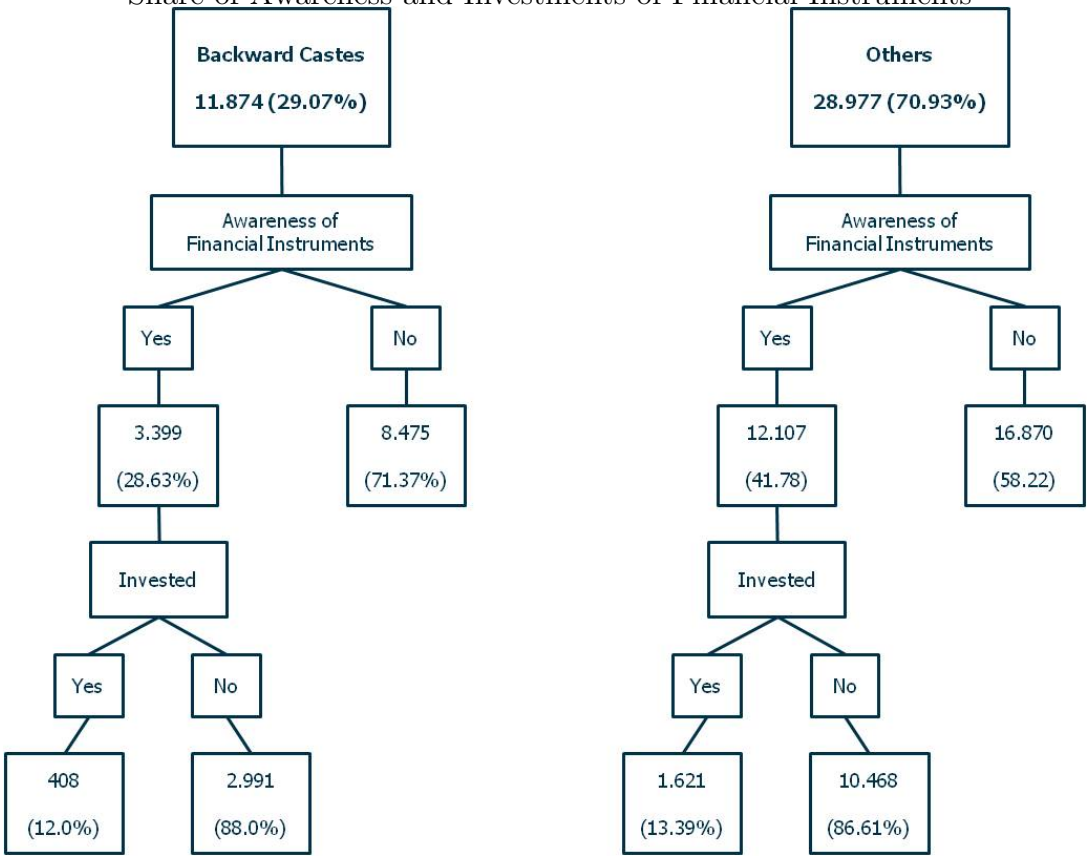

Figure 1 shows differences in awareness and investment behavior between "backward castes" and "others", with respect to the following financial instruments: shares, bonds, mutual funds, chit funds, and group savings. This figure provides an overview of the total values of our final sample, the percentaged shares of individuals belonging to backward castes and others are given in parentheses.

Table 1:

Means and Standard Deviations: Awareness of Financial Instruments and Savings

	others			backward caste			Differences	
Awareness (Sample I)	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.	Difference	test statistic
Shares	0.318	0.465	20960	0.200	0.400	7446	0.117	19.2854
Bonds	0.256	0.436	20960	0.147	0.355	7446	0 .108	19.2029
Mutual Funds	0.199	0.399	20960	0.118	0.323	7446	0.080	15.5945
Chit Funds	0.451	0.497	20960	0.328	0.469	7446	0.123	18.5364
Group Savings	0.300	0.458	20960	0.250	0.433	7446	0.049	8.5653
Awareness (Sample II)								
Shares	0.535	0.498	5458	0.349	0.476	1557	0.185	13.0890
Bonds	0.448	0.497	5458	0.289	0.453	1557	0.159	11.3509
Mutual Funds	0.383	0.486	5458	0.254	0.435	1557	0.128	9.3913
Chit Funds	0.548	0.497	5458	0.352	0.477	1557	0.196	13.8503
Group Savings	0.345	0.475	5458	0.284	0.451	1557	0.061	4.5424
Investment (Sample I)								
Shares	0.018	0.135	6677	0.014	0.120	1495	0 .003	1.1988
Bonds	0.016	0.126	5381	0.009	0 .099	1102	0.006	1.4269
Mutual Funds	0 .008	0.092	4179	0.003	0.058	885	0.005	1.7233
Chit Funds	0.113	0.317	9472	0.071	0.258	2446	0.041	6.4324
Group Savings	0.057	0.232	6288	0.110	0.313	1865	-0.053	-7.9086
Investment (Sample II)								
Shares	0 .032	0.176	2921	0.027	0.163	544	0.004	0.319
Bonds	0 .026	0 .162	2446	0.015	0.123	450	0.011	1.4212
Mutual Funds	0.012	0.112	2092	0 .002	0.050	397	0.010	1.7991
Chit Funds	0.106	0.308	2996	0 .067	0.250	549	0 .039	2.8211
Group Savings	0 .029	0 .169	1888	0 .040	0.197	443	- 0.010	-1.1853

Table 1 reports means and standard deviations for group differences between backward castes and others with respect to awareness and investments in shares, bonds, mutual funds, chit funds and group savings. First those individuals are considered who dispose savings to invest (awareness (I)). A two-sample tests of proportions is employed for categorical variables, for continuous variables we employ a t-test. In the second step individuals are considered who are in disposition of savings to invest and belong to the 25 percent of the top earners in our survey (awareness (II)). Group differences are statistically significant for all five investments and means are notably lower for backward castes than for others with respect to the awareness of financial instruments. Significant group differences still exist if we look at those who belong to the top 25 percent earners. Even by ensuring that an individual has a sufficient income to invest, individuals who affiliate to backward castes have a lowered awareness about these financial instruments compared to others. In the third and fourth step the same test for group differences is made with respect to investments in financial instruments. First individuals are considered who dispose positive savings (investment (I)) then those who dispose positive savings and belong to the 25 percent of the top earners. Again means are lower for individuals who are affiliated to backward caste than for Others, except that significance values are now notably lower. Hence, group differences with respect to the decision to invest seem to disappear as soon as an individual has savings to invest and in addition belongs to the top 25 percent earner (investment (II)). Individuals that are ascribed to Others can be members of all other caste groups as well as other religions like Muslims. Therefore test statistics show values of a two sample proportion test that is employed.

Table 2:

Summary Statistics for Explanatory Variables

	Others		backward castes		Differences	
	Mean	st. Dev.	Mean	st. Dev.	Difference	test statistic
Savings Decisions – Consultancy						
Only family and relatives	0.728	0.445	0.734	0.441	-0.007	-1.3804
Friends and peer group	0.177	0.381	0.167	0.373	0.009	1.9372
Professionals	0.072	0.258	0.074	0.261	-0.002	-0.71
Others	0.024	0.153	0.024	0.153	-0.000	-0.0187
Personal Characteristics						
Age*	39.512	11.619	38.635	11.497	0.877	6.945
Female	0.100	0.299	0.140	0.347	-0.040	-9.83
Married	0.855	0.352	0.839	0.367	0.016	3.41
Savings*	8.399	1.479	8.199	1.478	0.2005	5.6679
Risk Attitude	0.757	0.429	0.771	0.408	0.024	-4.6627
Education						
Illiterate	0.136	0.342	0.198	0.398	-0.062	-13.2153
Literate no schooling	0.022	0.147	0.028	0.167	-0.006	-3.2872
Less than primary	0.046	0.210	0.059	0.236	-0.001	-4.5731
Primary school	0.104	0.306	0.114	0.318	-0.009	-2.3257
Middle school	0.173	0.378	0.170	0.376	0.003	0.6132
High school	0.213	0.410	0.182	0.386	0.031	5.9798
Higher Secondary	0.101	0.302	0.104	0.306	0.003	-0.7755
Technical Diploma	0.022	0.148	0.014	0.121	0.007	4.0622
Graduate	0.123	0.002	0.098	0.003	0.025	5.9602
Professional Degree	0.023	0.152	0.011	0.108	0.011	6.3382
Post Graduate	0.032	0.176	0.016	0.128	0.015	7.0635
Knowledge English	0.443	0.496	0.369	0.482	0.075	8.4047
Knowledge Inflation	0.188	0.391	0.149	0.356	0.039	5.6280
Information Sources						
Daily Use Newspaper and Internet	0.433	0.495	0.302	0.278	0.448	19.8359
Irregular Use Newspaper and Internet	0.246	0.431	0.252	0.434	0.247	-2.7445
Daily Use Radio and TV	0.729	0.462	0.674	0.489	0.091	9.0688
Irregular Use Radio and TV	0.289	0.453	0.289	0.453	-0.001	-0.5659
Regional Characteristics						
Fraction of backward caste* (state level)	0.253	0.105	0.348	0.224	-0.094	-49.27
Rural	0.445	0.498	0.514	0.495	-0.069	-10.5668
GDP p.c. (state level)*	9.888	0.387	9.895	0.382	-0.007	-2.8547
Illiteracy rate* (state level)	0.322	0.105	0.326	0.091	-0.004	-2.698

Table 2 reports summary statistics for explanatory variables separately for backward castes and other castes. Four dummy variables are classified into "Savings Decisions – Consultancy". These variables indicate the groups of individuals consulted by household heads before taking a savings decisions. "Personal Characteristics" comprise age, gender, marital status and risk attitude. The level of "Education" and knowledge is measured by 13 dummy variables, the use of "information sources" is measured by four dummy variables. Moreover, official data for Indian states are used to control for regional characteristics such as the fraction of individuals belonging to backwards castes in total population, the Gross Domestic Product (GDP) per capita and the illiteracy rate at the state level. Our empirical analyses are based on 7446 observations for backward castes and 20960 for others. The table reports a two-sample tests of proportions between the sample means of the group of individuals belonging to backward castes and the group of individuals belonging to other castes. Continuous variables are assigned with one asterisk. The test statistics show the values of a two sample proportion test.

Table 3:

Variation Inflation Factors for Explanatory Variables

Explenatory Variables	VIF
Savings Decisions – Consultancy	
Friends and peer group	1.03
Professionals	1.02
Others	1.01
Personal Characteristics	
Backward Caste	1.11
Age	1.16
Female	1.08
Married	1.14
Savings	1.18
Risk Attitude	1.03
Education	
Literate no schooling	1.14
Less than primary	1.32
Primary school	1.32
Middle school	1.74
High school	2.32
Higher Secondary	3.05
Technical Diploma	2.46
Graduate	1.36
Professional Degree	2.96
Post Graduate	1.41
Knowledge English	2.05
Knowledge Inflation	1.15
Information Sources	
Daily Use Newspaper and Internet	2.44
Irregular Use Newspaper and Internet	1.55
Daily Use Radio and TV	1.32
Irregular Use Radio and TV	1.05
Regional Characteristics	
Fraction of backward caste (state level)	1.15
Rural	1.14
Illiteracy rate (state level)	1.10

Table 3 reports the variation inflation factors (VIF) for explanatory variables used in our empirical estimations. In order to compute VIFs, we conduct a linear probability model where the dependent variable is the awareness of shares. The values of the variation inflation factors are below the critical levels suggested in the literature which means that multicollinearity is not a severe problem.

Table 4:

Baseline Results: Awareness of Financial Instruments

	Shares (1)	Bonds (2)	Mutual Funds (3)	Chit Funds (4)	Group Savings (5)
Savings Decisions - Consultancy					
Friends and peer group	0.0477***	0.0397***	0.0271***	0.0618***	0.0313***
	(0.00783)	(0.00676)	(0.00557)	(0.00869)	(0.00753)
Professionals	0.0569***	0.0609***	0.0378***	0.105***	0.0810***
	(0.0118)	(0.0107)	(0.00866)	(0.0129)	(0.0117)
Others	0.00510	0.0383**	0.0135	0.0881***	0.109***
	(0.0191)	(0.0183)	(0.0139)	(0.0229)	(0.0209)
Regional Characteristics					
Rural	-0.0694***	-0.0573***	-0.0600***	-0.0780***	0.0245***
	(0.00576)	(0.00495)	(0.00407)	(0.00667)	(0.00580)
Fraction of backward caste (state level)	-0.00396***	-0.00305***	-0.00204***	-0.00752***	-0.00105***
	(0.000193)	(0.000168)	(0.000126)	(0.000232)	(0.000180)
Illiteracy rate (state level)	-0-.002329***	-0.00185***	-0.00210***	-0.01086***	-0.00140***
	(0.00027)	(0.00022)	(0.000187)	(0.00031)	(0.000269)
Personal Characteristics					
backward caste	-0.0299***	-0.0259***	-0.00966**	-0.0136*	-0.0212***
	(0.00666)	(0.00566)	(0.00475)	(0.00755)	(0.00641)
Female	-0.0389***	-0.00959	-0.00964	-0.00521	0.0258***
	(0.00917)	(0.00829)	(0.00648)	(0.0110)	(0.00968)
Married	-0.00219	0.00246	0.00643	0.0190**	0.0268***
	(0.00822)	(0.00706)	(0.00557)	(0.00924)	(0.00781)
Age	0.00163***	0.00175***	0.00132***	0.000388	-0.000270
	(0.000267)	(0.000230)	(0.000184)	(0.000298)	(0.000257)
Savings	0.00757***	0.000643	0.00561***	-0.00986***	-0.00909***
	(0.00215)	(0.00182)	(0.00149)	(0.00241)	(0.00206)
Risk Attitude	0.0266***	-0.00641	0.0153***	-0.00643	-0.0320***
	(0.00624)	(0.00556)	(0.00420)	(0.00744)	(0.00648)
Education					
Literate no schooling	0.0935***	0.0354	0.0403*	-0.0145	-0.0525***
	(0.0296)	(0.0245)	(0.0239)	(0.0221)	(0.0182)
Less than primary	0.0934***	0.00703	0.0145	-0.0402**	-0.00817
	(0.0227)	(0.0186)	(0.0173)	(0.0172)	(0.0148)
Primary school	0.142***	0.0359**	0.0315**	0.00759	-0.0133
	(0.0189)	(0.0152)	(0.0146)	(0.0140)	(0.0118)
Middle school	0.170***	0.0642***	0.0507***	0.0200	-0.0174
	(0.0174)	(0.0145)	(0.0138)	(0.0132)	(0.0110)
High school	0.192***	0.0809***	0.0552***	0.0434***	-0.0231**
	(0.0177)	(0.0150)	(0.0139)	(0.0141)	(0.0116)
Higher Secondary	0.265***	0.139***	0.104***	0.0148	-0.0219
	(0.0209)	(0.0188)	(0.0182)	(0.0164)	(0.0134)
Technical Diploma	0.355***	0.261***	0.191***	0.105***	0.0266
	(0.0296)	(0.0302)	(0.0294)	(0.0277)	(0.0229)
Graduate	0.373***	0.241***	0.197***	0.0770***	0.00411
	(0.0211)	(0.0211)	(0.0217)	(0.0175)	(0.0145)
Post Graduate	0.387***	0.298***	0.292***	0.136***	0.0423*
	(0.0296)	(0.0311)	(0.0329)	(0.0281)	(0.0234)
Professional Degree	0.326***	0.260***	0.215***	0.0588**	0.0343
	(0.0276)	(0.0279)	(0.0282)	(0.0244)	(0.0210)
Knowledge English	0.131***	0.0990***	0.0895***	0.0596***	0.0486***
	(0.00745)	(0.00656)	(0.00563)	(0.00885)	(0.00766)
Inflation Knowledge	0.125***	0.131***	0.111***	0.0892***	0.0997***
	(0.00768)	(0.00706)	(0.00609)	(0.00853)	(0.00761)
Information Sources					
Daily use Newspaper Interned	0.114***	0.119***	0.0838***	0.120***	0.0848***
	(0.00866)	(0.00773)	(0.00661)	(0.00974)	(0.00859)
Irregular use Newspaper Internet	0.0579***	0.0404***	0.0345***	0.0310***	0.0311***
	(0.00839)	(0.00745)	(0.00635)	(0.00913)	(0.00793)
Daily use Radio TV	0.0736***	0.0611***	0.0333***	0.0935***	0.0705***
	(0.00688)	(0.00593)	(0.00506)	(0.00776)	(0.00658)
Irregular use Radio TV	0.00129	-0.00669	0.00561	0.0131*	0.0190***
	(0.00616)	(0.00519)	(0.00428)	(0.00718)	(0.00616)
McFadden's R^2	0.223	0.251	0.269	0.143	0.050

Table 4 reports the marginal effects of the explanatory variables on the probabilities of being aware of shares, bonds, mutual funds, chit funds, and group savings. For binary coded variables, marginal effects express the impact of a discrete change of the variable from 0 to 1.The dependent variables take on the value one if respondents declare that they are aware of the respective financial instrument and zero otherwise. Only those individuals are considered who report that they never invested in the respective financial instrument.Each regression is based on 26,422 observations. Only those individuals are considered who report that they never invested in the respective financial instrument. Robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Table 5:

Awareness of Financial Instruments and Interactions

	Shares (1)	Bonds (2)	Mutual Funds (3)	Chit Funds (4)	Group Savings (5)
Main Variables					
Backward caste	-.0497***	-0.039***	-0.023***	-0.054***	-0.027***
	(0.006)	(0.005)	(0.004)	(0.007)	(0.006)
Friends and peer group	0.058***	0.054***	0.030***	0.060***	0.019**
	(0.008)	(0.007)	(0.005)	(0.008)	(0.007)
High share of backward caste*(state level)	-0.090***	-0.082***	-0.041***	-0.100***	0.008
	(0.006)	(0.005)	(0.004)	(0.007)	(0.006)
Pairwise Interaction					
Backward caste ∗ friends	0.030	0.026	0.007	0.013	0.001
	(0.019)	(0.019)	(0.013)	(0.021)	(0.018)
Backward caste ∗ high share of backward caste	-0.095***	-0.0485***	-0.044***	-0.121***	-0.018
	(0.012)	(0.012)	(0.008)	(0.015)	(0 .012)
High share of backward caste ∗ friends	-0.004	-0.0297**	-0.005	0.029*	0.103***
	(0.015)	(0.013)	(0.010)	(0.017)	(0.015)
Triple Interaction					
Backward caste ∗ high share of backward caste	-0.058*	-0.084**	0.010	-0.057	-0.058*
∗ friends	(0.034)	(0.029)	(0.024)	(0.038)	(0.034)

Table 5 reports the marginal effects of our key dummy variables (backward caste, friends, and high share of backward castes at the state-level) and their pairwise and triple interactions. The dummy variable reflecting a high share of backward castes at the state-level takes on the value one if a respondent lives in an Indian state where the share of backward castes in total population exceeds the average share of all Indian states. For binary coded variables, marginal effects express the impact of a discrete change of the variable from 0 to 1. The dependent variables take on the value one if respondents declare that they are aware of the respective financial instrument and zero otherwise. The sample comprises the respondents who are head of the household and data are obtained from the National Data Survey on Saving Patterns of Indians conducted between 2004 and 2005. Each regression is based on 26,409 observations. Only those individuals are considered who report that they never invested in the respective financial instrument. Although not reported here, all control variables are included into the probit regressions. Robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Table 6:

Baseline Results: Investment in Financial Instruments

	Shares (1)	Bonds (2)	Mutual Funds (3)	Chit Funds (4)	Group Savings (5)
Savings Decision - Consultancy					
Friends and peer group	0.1523*	0.00201	0.00151	0.0187**	0.0146**
	(0.0832)	(0.00287)	(0.00179)	(0.00757)	(0.00657)
Professionals	0.0988	-0.00248	0.00608	-0.00640	0.0167*
	(0.123)	(0.00331)	(0.00401)	(0.00973)	(0.00861)
Others	-0.137	0.00285	n.a.	0.0876***	0.0253*
	(0.00539)	(0.00674)	n.a.	(0.0212)	(0.0141)
Regional Characteristics					
Rural	-0.00284	0.00186	-0.00169	0.00588	0.04330***
	(0.0023)	(0.0027)	(0.0012)	(0.0058)	(0.00977)
Fraction of backward caste (state level)	.00143	-0.000163*	-0.0002***	-0.00320***	-0.00007
	(0.003)	(9.49e-05)	(6.40e-05)	(0.000400)	(0.000171)
GNP (state level)	0.294***	-0.004734**	-0.00051	-0.03995***	-004062***
	(0.105)	(0.0028)	(0.001235)	(0.007717)	(0.00977)
Personal Characteristics					
backward caste	-0.00143	-0.00314	-0.00150	-0.0364***	0.0177***
	(0.00318)	(0.00259)	(0.00141)	(0.00609)	(0.00587)
Female	-0.0564	0.00379	-0.00287**	0.0130	0.108***
	(0.193)	(0.00473)	(0.00117)	(0.00977)	(0.01119)
Married	0.188	0.0000	0.000984	0.00593	0.01279**
	(0.132)	(0.00376)	(0.00176)	(0.00787)	(0.05336)
Age	0.011***	0.000444***	4.39e-05	-0.00145***	0.0128**
	(0.00386)	(0.000102)	(5.74e-05)	(0.000274)	(0.00534)
Savings	0.110***	0.00360***	0.00121***	0.000710	-0.000572***
	(0.0275)	(0.000841)	(0.000465)	(0.00196)	(0.000216)
Risk Attitude	-0.366***	-0.00216	0.000463	0.00506	-0.00118
	(0.0715)	(0.00244)	(0.00123)	(0.00586)	(0.00155)
Education					
Literate no schooling	n.a.	n.a.	n.a.	-0.0347**	0.0102**
	n.a.	n.a.	(0.0168)	(0.00478)	
Less than primary	0.0781	0.00511	n.a.	0.0155	0.0113
	(0.371)	(0.0195)	n.a.	(0.0177)	(0.0154)
Primary school	-0.227	-0.00125	0.846**	-0.0258**	-0.0211***
	(0.355)	(0.0106)	(0.349)	(0.0105)	(0.00642)
Middle school	-0.156	0.000309	0.698	-0.0336***	-0.0158***
	(0.322)	(0.0111)	(0.470)	(0.00984)	(0.00610)
High school	-0.133	-0.00471	0.532	-0.0516***	-0.0246***
	(0.312)	(0.00809)	(0.470)	(0.00981)	(0.00544)
Higher Secondary	0.0920	-0.00225	0.601	-0.0678***	-0.0352***
	(0.319)	(0.00931)	(0.481)	(0.00814)	(0.00572)
Technical Diploma	0.187	0.00488	0.750*	-0.0478***	-0.0346***
	(0.339)	(0.0156)	(0.443)	(0.0121)	(0.00549)
Graduate	0.0119	-0.00424	0.428	-0.0805***	-0.0227**
	(0.321)	(0.00902)	(0.406)	(0.00801)	(0.00928)
Post Graduate	0.210	0.000411	0.791**	-0.0681***	-0.0396***
	(0.341)	(0.0116)	(0.396)	(0.00890)	(0.00562)
Professional Degree	-0.0173	0.000257	0.769*	-0.0652***	-0.0374***
	(0.343)	(0.0113)	(0.413)	(0.00897)	(0.00547)
Knowledge English	-0.173	0.00543**	0.00324***	0.0176**	-0.0384***
	(0.110)	(0.00269)	(0.00106)	(0.00731)	(0.00489)
Inflation Knowledge	0.325***	0.00673***	0.00261**	0.0129*	-0.000180
	(0.0702)	(0.00238)	(0.00124)	(0.00667)	(0.00651)
Information sources					
Daily use Newspaper Internet	0.138	0.00365	0.00128	0.00719	0.00892*
	(0.129)	(0.00298)	(0.00206)	(0.00872)	(0.00542)
Irregular use Newspaper Internet	-0.0524	0.00272	-0.00183	0.00207	-0.0179**
	(0.110)	(0.00295)	(0.00126)	(0.00817)	(0.00723)
Daily use Radio TV	-0.136	0.00517*	-0.00593	0.0387***	0.000150
	(0.114)	(0.00297)	(0.00394)	(0.00648)	(0.00605)
Irregular use Radio TV	0.0566	-0.00405*	-0.000882	0.0185***	-0.00203
	(0.0773)	(0.00215)	(0.00110)	(0.00625)	(0.00565)
Observations	8114	6438	4843	11914	8151
McFadden's R^2	0.094	0.093	0.105	0.041	0.180

Table 6 reports the marginal effects of the explanatory variables on the probabilities of having invested in shares, bonds, mutual funds, chit funds and group savings. For binary coded variables, marginal effects express the impact of a discrete change of the variable from 0 to 1. The dependent variables take on the value one if respondents declare that they are aware of the respective financial instrument and zero otherwise. Only those individuals are considered who declare that they are aware of the respective financial instrument. Robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.

Table 7:

Investment in Financial Instruments and Interactions

	Shares (1)	Chit Funds (2)	Group Savings (3)
Main Variables			
Backward caste	-0.002	-0.037***	0.019**
	(0.002)	(0.006)	(0.006)
Friends and peer group	0.004	0.015**	0.014**
	(0.003)	(0.007)	(0.007)
High share of backward caste*(state level)	-0.009***	0.010	0.017**
	(0.003)	(0.012)	(0.008)
Pairwise Interaction			
Backward caste ∗ friends	-0.004	-0.026	0.013
	(0.007)	(0.016)	(0.019)
Backward caste ∗ high share of backward caste	0.001	0.023	-0.016
	(0.012)	(0.016)	(0.013)
High share of backward caste ∗ friends	0.009	-0.033*	-0.012
	(0.006)	(0.017)	(0.015)
Triple Interaction			
Backward caste ∗ High share of backward caste	0.014	0.066*	-0.003
∗ friends	(0.014)	(0.039)	(0 .035)

Table 7 reports the marginal effects of our key dummy variables (backward caste, friends, and high share of backward castes at the state-level) and their pairwise and triple interactions. The dummy variable reflecting a high share of backward castes at the state-level takes on the value one if a respondent lives in an Indian state where the share of backward castes in total population exceeds the average share of all Indian states. For binary coded variables, marginal effects express the impact of a discrete change of the variable from 0 to 1. The dependent variables take on the value one if respondents declare that they invested in the respective financial instrument and zero otherwise. In pairwise and triple interactions there is no outcome for investment in bonds and mutual funds due to insufficient observations. Only those individuals are considered who declare that they are aware of the respective financial instrument.Although not reported here, all control variables are included into the probit regression. Robust standard errors are given in parentheses. ***, **, * denote significant at the 1, 5, 10 percent level.